



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,435	08/12/2005	Jochen Marx	941-012057-US (PAR)	2404
2512	7590	12/15/2009		
Perman & Green, LLP 99 Hawley Lane Stratford, CT 06614				
EXAMINER				
OLANIRAN, FATIMAT O				
ART UNIT		PAPER NUMBER		
2614				
MAIL DATE		DELIVERY MODE		
12/15/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/519,435

**Applicant(s)**

MARX ET AL.

**Examiner**

FATIMAT O. OLANIRAN

**Art Unit**

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 9/27/2009 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with applicant's arguments. A non-flat frequency response is inherent to a loudspeaker, as all loudspeakers inherently have frequency response imperfections. In addition Bares filter reads on applicant's equalizer. Also Bares reads on applicant's claim 1, "...decreasing said frequency selective attenuation to increase the volume of the sound reproduced by said loudspeaker when a maximum amplification by said amplifier has already been reached..." Because after maximum amplification is reached by the amplifier, distortion of the signal occurs. Bares addresses distortion which occurs after maximum amplification has been reached (abstract).

Claim 7 recites an industry standard, ISO 226: 1987 and is therefore inherent to any invention directed towards the relevant subject matter. Bares discloses frequency selective attenuation (col. 4 line 1-30).

Examiner respectfully disagrees with applicant's arguments with regards to Koski. Koski clearly reads on applicant's claim language when given the broadest most reasonable interpretation. Means for adjusting the frequency response "...depending on the type of audio signal..." is disclosed by Koski because Koski's processing is based on the noise level of the audio signal, a noisy signal being a type of audio signal (col. 5 line 3-17). The previous rejection has been reinstated.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1, 3, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Bares et al (4721923).

Claim 1, Bares discloses a mobile communication terminal comprising a loudspeaker with a non-flat frequency response, an amplifier and an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation characterized by comprising means for decreasing said frequency selective attenuation to increase the volume of the sound reproduced by said loudspeaker when a maximum amplification by said amplifier has already been reached (abstract, Fig. 4 and col. 4 line 11-45).

Claim 3 analyzed with respect to claim 1, Bares discloses characterized in that said frequency selective attenuation is decreased by changing the characteristic of said equalizer (Fig. 4 and col. 4 line 11-45).

Claim 7 analyzed with respect to claim 3, Bares discloses characterized in that said means for adjusting the amount of said frequency selective attenuation are arranged to adapt the profile of the frequency response of the loudspeaker system increasingly to the hearing curve of the human ear, preferably as defined in ISO 226:1987, with decreasing volume setting (Fig. 4 and col. 3 line 57-67 and col. 4 line 1-30).

3. Claims 8-9, 11, 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Koski et al (6011853).

Claim 8, Koski discloses a mobile communication terminal (col. 2 lines 47-50) comprising a loudspeaker (fig. 2 element 8), with a non-flat frequency response, an amplifier and an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation, characterized in that said audio system comprises means for adjusting said frequency selective attenuation (col. 4 line 55-57 and col. 5 line 3-35) to increasingly adapt the frequency response of said loudspeaker to the human hearing curve with decreasing volume setting (col. 5 line 31-32 and col. 6 line 21-22).

Claim 9, Koski discloses characterized in that said means for adjusting said frequency selective attenuation increasingly adapt the frequency response of said loudspeaker to normal equal-loudness level contours as defined in ISO 226:1987 with decreasing volume setting (col. 5 line 27-32 and col. 6 line 20-22).

Claim 11, Koski discloses sound reproduction system for a mobile communication terminal (col. 2 lines 47-50) comprising a loudspeaker with a non-flat frequency response (fig. 2 element 8), an amplifier and an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation (col. 4 line 55-57 and col. 5 line 3-35), characterized in that said audio system comprises means for adjusting the frequency response characteristic of said equalizer depending on the type of audio signal reproduced (col. 5 line 3-17).

Claim 13, Koski discloses characterized by comprising means for automatically adjusting the frequency response of said equalizer when a speech signal is reproduced to obtain a substantially flat frequency response of said loudspeaker (col. 5 line 20-35).

Claim 14, Koski discloses characterized by comprising means for automatically adjusting the frequency response of said equalizer when a speech signal is reproduced to obtain a frequency response of said loudspeaker that substantially corresponds to normal equal-loudness level contours as defined in ISO 226:1987 (col. 5 line 27-32 and col. 6 line 20-22).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2, 4-5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bares et al (4721923).

Claim 2 analyzed with respect to claim 1, Bares does not explicitly disclose characterized in that said frequency selective attenuation is decreased by decreasing the attenuation for all frequencies reproduced.

However Bares discloses characterized in that said frequency selective attenuation is decreased by decreasing the attenuation for frequencies reproduced (Fig. 4 and col. 4 line 11-35). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention that design choice would determine which frequencies would be selected in order to obtain a desired acoustic effect.

Claim 4 analyzed with respect to claim 2 Bares discloses characterized in that said means for decreasing said frequency selective attenuation are arranged to gradually decrease said frequency selective attenuation with increasing volume setting (Fig. 4 and col. 4 line 11-29).

Claim 5 analyzed with respect to claim 4, 2, Bares does not explicitly disclose characterized in that said means for decreasing said frequency selective attenuation are set to obtain substantially zero attenuation of all frequencies reproduced at a maximum volume setting. However Bares discloses characterized in that said means for decreasing said frequency selective attenuation are set to obtain substantially decreased attenuation of selected frequencies reproduced at a maximum volume setting (Fig. 4 and col. 4 line 11-45). It would have been obvious to one of ordinary skill in the art at the time of the invention that the decreased attenuation of Bares is in order to obtain a minimal, therefore substantially zero attenuation in order to improve a listeners volume range as disclosed by bares (abstract)

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et al (6011853) in view of Bares et al (4721923).

Claim 10 analyzed with respect to claim 8, Koski does not explicitly disclose characterized by comprising means for decreasing said frequency selective attenuation to increase the volume of the sound reproduced by said loudspeaker when a maximum amplification by said amplifier has already been reached.

Bares discloses characterized by comprising means for decreasing said frequency selective attenuation to increase the volume of the sound reproduced by said loudspeaker when a maximum amplification by said amplifier has already been reached (Fig. 4 and col. 4 line 1-30).



Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the filter of Koski with the amplification method of Bares in order to reduce distortion and improve intelligibility as taught by Bare (col. 2 lines 1-5)

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et al. (6011853).

Claim 12 analyzed with respect to claim 11, Koski discloses characterized in that said type of audio signals comprise speech signals, speech signals for use with a loudspeaker, ringing tones (inherent to device).

Koski does not disclose speech signals for use with a headset, music signals and alarms. However, examiner takes official notice on the limitations "speech signals for use with a headset, music signals and alarms". Communication devices that use headsets, play music and have alarms were well known in the art at the time of the invention. Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to include various audio capabilities to the communication device of Koski in order to provide a multi-functional device.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et al. (6011853) in view of Kirkeby (20020039421)

Claim 15 analyzed with respect to claim 11, Koski does not disclose characterized by comprising means for automatically adjusting the frequency response of said equalizer

when a music signal is reproduced to obtain a low attenuation of the low-frequency part of the sound reproduced.

Kirkeby discloses adjusting the frequency response of said equalizer when a music signal is reproduced to obtain a low attenuation of the low-frequency part of the sound reproduced (paragraph 57 line 1-5).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the equalizer circuit of Koski to include a low-frequency boost as disclosed by Kirkeby in order to provide a user with a preferred audio output effect.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et al. (6011853) in view of Fincham (7254239).

Claim 16 analyzed with respect to claim 11, Koski does not disclose characterized by comprising means for automatically adjusting the frequency response of said equalizer when a music signal is reproduced to obtain a high attenuation of mid-frequency part of the sound reproduced.

Fincham discloses adjusting the frequency response of said sound processor when a music signal is reproduced to obtain a high attenuation of mid-frequency part of the sound reproduced (col. 12 line 18-19).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the equalizer circuit of Koski to include a mid-frequency adjustment in order to provide a user with a preferred audio output effect.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et al. (6011853) in view of Umemoto et al. (5379338)

Claim 17 analyzed with respect to claim 11, Koski does not explicitly disclose characterized by comprising means for automatically adjusting the frequency response of said equalizer when a ringing signal or an alarm signal is reproduced to a substantially zero attenuation of all frequencies of the sound reproduced.

Umemoto discloses means for producing a ringing signal that bypasses the equalizer (and therefore results in zero attenuation). (Fig. 1 element 32 and col. 6 line 59-65).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the communication apparatus circuit of Koski with a means for passing a ringing or alarm signal without attenuation as disclosed by Umemoto in order to alert a user of a call or a message.

11. Claims 6 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bares et al (4721923) in view of Koski et al. (6011853).

Claim 6 analyzed with respect to claim 4, 2, Bares does not explicitly disclose characterized by comprising means for adjusting the amplification level of said means for amplifying, said means for adjusting the amplification level being arranged to maintain the amplification at a maximum level when said volume setting is reduced until said means for decreasing said frequency selective attenuation has increased the attenuation factor to a level at which a substantially linear frequency response of said loudspeaker is obtained.

Koski discloses means for adjusting the amplification level of said means for amplifying, said means for adjusting the amplification level being arranged to maintain the amplification at a maximum level when said volume setting is reduced until said means for decreasing said frequency selective attenuation has increased the attenuation factor to a level at which a substantially linear frequency response of said loudspeaker is obtained (col. 8 line 25-34).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the amplification of Bares with the filter method of Koski in order to reduce distortion and improve intelligibility.

Claim 18, Bares discloses a method of controlling the volume of sound produced by an audio system for a mobile communication terminal, said audio system comprising a loudspeaker with a non-flat frequency response, means for amplifying an audio signal, an equalizer for at least partially compensating the non-flat frequency response of said

loudspeaker by frequency selective attenuation and input means allowing user input for increasing or decreasing the volume (Fig. 4 and abstract and col. 2 line 45-67 and col. 3 line 1-17), comprising:

increasing the amplification of said audio signal when an input for increasing the volume is received and a maximum amplification has not yet been reached (inherent),  
decreasing the frequency selective attenuation of said equalizer when input for increasing the volume is received and the maximum amplification has already been reached (Fig. 4 and col. 4 line 1-30),

Bares does not explicitly disclose increasing the frequency selective attenuation of said equalizer when an input for decreasing the volume is received and the frequency selective attenuation is below desired setting for frequency selective attenuation, and decreasing the amplification of said audio signal when input for decreasing the perceived loudness is received and the attenuation level of said equalizer is at the desired setting for frequency selective attenuation.

Koski discloses increasing the frequency selective attenuation of said equalizer when an input for decreasing the volume is received and the frequency selective attenuation is below desired setting for frequency selective attenuation, and decreasing the amplification of said audio signal when input for decreasing the perceived loudness is received and the attenuation level of said equalizer is at the desired setting for frequency selective attenuation (col. 6 line 5-22 and col. 8 line 30-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the amplification of Bares with the filter method of Koski in order to reduce distortion and improve intelligibility.

Claim 19 analyzed with respect to claim 18, Bares in view of Koski does not explicitly disclose further comprising that the frequency selective attenuation is decreased by decreasing the attenuation for all frequencies reproduced. However Bares discloses the frequency selective attenuation is decreased by decreasing the attenuation for selected frequencies reproduced (Fig. 4 and col. 4 line 11-35). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention that design choice would determine which frequencies would be selected in order to obtain a desired acoustic effect.

Claim 20 analyzed with respect to claim 18 Bares in view of Koski disclose further comprising that the frequency selective attenuation is decreased by changing the characteristic of the equalizer (Bares Fig. 4 and col. 4 line 11-45).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FATIMAT O. OLANIRAN whose telephone number is (571)270-3437. The examiner can normally be reached on M-F 10:00-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FO

/Vivian Chin/  
Supervisory Patent Examiner, Art Unit 2614